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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
10/010,939	11/07/2001	Harold G. Craighead	1153.009US1	5674	
21186	7590	10/28/2005	EXAMINER		
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH				SINES, BRIAN J	
1600 TCF TOWER				ART UNIT	
121 SOUTH EIGHT STREET				PAPER NUMBER	
MINNEAPOLIS, MN 55402				1743	

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/010,939	CRAIGHEAD ET AL.	
	Examiner Brian J. Sines	Art Unit 1743	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on \_\_\_\_\_.
- 2a)  This action is FINAL.                            2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 26-34 is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 1-25 and 35-50 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a)  All    b)  Some \* c)  None of:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4)  Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 25 & 35 – 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the claim recites the calculation of a refractive index. It is unclear as to how the claimed apparatus performs the recited function. A processing means for performing the calculation is not recited. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device (See MPEP § 2172.01).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

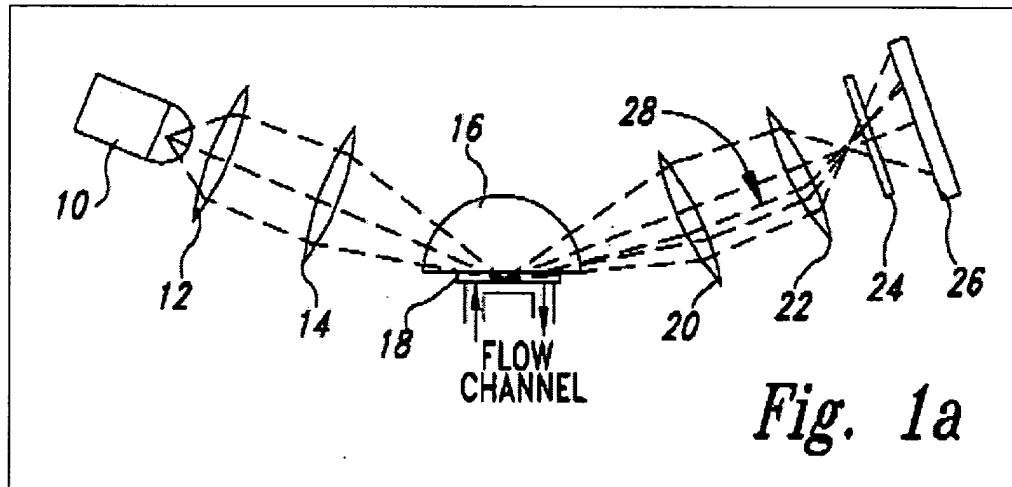
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

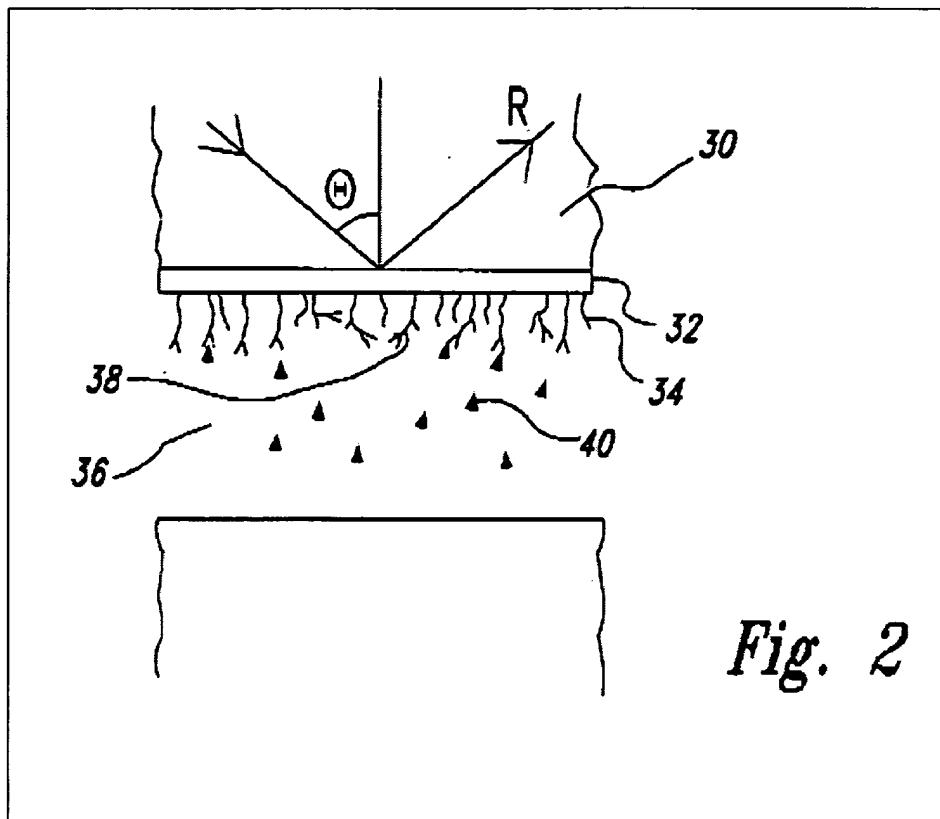
Claims 1 – 11, 13 – 25, 42, 43 & 45 – 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Malmqvist et al. (U.S. Pat. No. 5,965,456 A) (hereinafter “Malmqvist”).

Regarding claims 1 – 5, 7 – 11, 13 – 17, 20 – 25, 42, 43 & 47 – 50, Malmqvist teaches a detection apparatus comprising: a duct, cavity, chamber means or flow channel comprising sidewalls; a glass support (30) coated with a thin gold film (32); a light source (LED 10); and a

light receiver or optical sensor (photodetector 26) (see figure 1a). Malmqvist teaches that the apparatus comprises glass (see col. 5, lines 16 – 30). Malmqvist teaches the incorporation of an immobilized binding partner, such as an antibody (38), for detecting target analytes (see col. 5, lines 16 – 30). Malmqvist indicates that the apparatus utilizes a surface refractive index measurement during operation (see col. 4, lines 21 – 30). The apparatus also comprises computer control and data-processing means (see col. 5, lines 7 – 12).



Regarding claims 6 & 46, Malmqvist teaches that the apparatus comprises a thin gold film (32) having a thickness of about 47 nm within the flow channel (36) (see col. 5, lines 16 – 30; figure 2). Thus, as shown in figure 2, it is inherently anticipated that the gap or channel width would be in the range of between 50 and 1,000 nm.



Regarding claim 18, the apparatus also comprises a prism (16) (see figure 1a).

Regarding claims 19 & 45, Malmqvist indicates that the apparatus can comprise a plurality of flow channels, each comprising a plurality of prisms (see figure 1b).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 12 & 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malmqvist in view of Bamdad et al. (U.S. Pat. No. 5,620,850 A) (hereinafter “Bamdad”). Malmqvist does not specifically teach the incorporation of an immobilized chelator with the disclosed sensing device. Bamdad does teach the incorporation of an immobilized cheating agent in a biosensor comprising a surface plasmon resonance chip (see, e.g., col. 5, lines 26 – 51). The Courts have held that the selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) (see MPEP § 2144.07). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate an immobilized chelator with the disclosed sensing device as claimed.

2. Claims 35 – 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malmqvist. Regarding claims 35 – 41, as discussed above, Malmqvist teaches all of the positively recited structure of the apparatus provided in the claimed method, which merely recites the conventional operation of that apparatus. Therefore, it would have been obvious to a person of ordinary skill in the art to perform the method recited in the instant claims upon the apparatus of Malmqvist, as such is the intended operation of that apparatus.

***Response to Arguments***

Applicant's arguments with respect to the pending claims have been considered, but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Brian J. Sines".